## Business Process Overview

Project Costing, with full integration to other Cardinal applications, gives immediate financial and operational insight into Project-centric operations. However, before project-level financial transactions can be entered into Cardinal, a project must be created in the system. A key concept of the Project Costing module is defining the structure for projects and the project-specific chartfields. The projects chartfield structure is made up of the following elements: PC business unit, project id, activity id, source type, category, and sub-category.

Project IDs and activity IDs will be addressed in this business process narrative and related flow, however creating source types, categories, and sub-categories are configuration items that are pre-defined when the system is rolled out. Source types, categories, and sub-categories are optional and the requirements for these chartfields will not be finalized until the design phase.

Project Costing allows the analysis of transactions related to a project in one place. It allows the review of data and details such as accounting dates, employee id's, voucher id's and expense report id's without the need to access the Time & Labor, Accounts Payable, or Expenses modules.

Project Chartfield Structure:
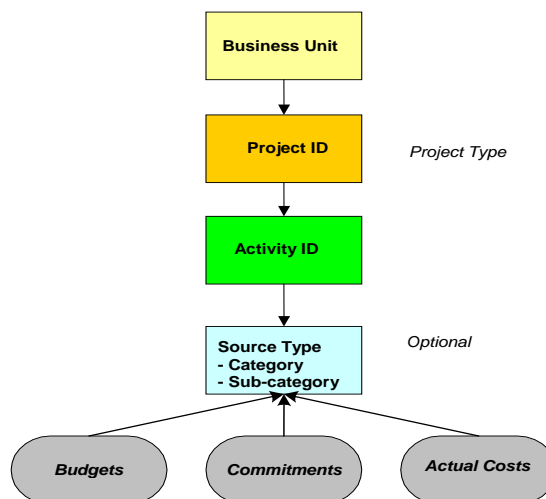
Once collected in Project Costing, project costs can be distributed among multiple funding sources by using the funds distribution process (PC_FND_DIST). The funds distribution process distributes/splits costs by applying funds distribution rules to incoming transactions, and assigning costs accordingly. Funds distribution also provides the ability to apply thresholds/limits to control the amounts applied to each funding source. The details of processing funds distribution are covered in the PA 4.2 - Funds Distribution and Pricing sub-business process. This narrative will address the setup up of funds distribution rules.

The Create and Maintain Projects business process includes the following sub-processes: Create and Maintain Projects and Activities and Create and Maintain Funds Distribution Rules.

1.1   Create and Maintain Projects & Activities

In Project Costing, a project is an identifier for cost collection and for monitoring progress and status for a product or service. The life span of a project can range from several months to several years.

Activities are the specific tasks associated to a project and where transactional data gets recorded and monitored. Project activities can be restricted to a pre-defined list based on project type, by selecting the "standard activities" feature on the definitions page.

Summary projects may be created to provide project grouping capabilities and to present an efficient means to identify project relationships, as well as, reporting of detail projects used for tracking costs and billing purposes. The roll up and hierarchy of projects can be managed using Tree functionality.

The Create and Maintain Projects & Activities sub-process is made up of the steps below:

1.1.1   Create New Project:

- Project Costing provides project creation tools that eliminate the need to recreate key information for each new project. The following actions can be performed to create a new project:

    - Add a new, blank project and enter the required information.
    - Use a predefined project template or copy any existing project as a starting point for a new project.
    - Receive projects from third party systems using delivered component interfaces (or a custom loader process) and corresponding third party loader.

1.1.1.1 Map Fields from Third-Party Application:

- Steps 1.1.1.1 through 1.1.1.3 apply to loading Projects & Activities using delivered component interfaces (or a custom loader process) and the corresponding third party loader.

    Load projects and activities to the projects interface staging table and the activities interface staging table using the delivered components interfaces or using a custom loader process.

1.1.1.2 Review and Modify Projects and Activities Interface Data

- After the component interfaces or custom loader process populates the projects interface staging table and activities interface staging table, the interface data can be reviewed and/or modified before running the load projects and activities process to load the Project Costing tables.

1.1.1.3 Run Load Projects and Activities Interface:

- After reviewing and/or modifying the interface data, the load project and activities process (PC_INTF_GEN) will be run to populate the Project Costing tables that relate to project and activity definitions. The details of these tables are explained in the steps below.

1.1.2   Define/Update General Information:

- Steps 1.1.2 through 1.1.10 can all be automated if the copy, template, or third party loader functionality is used to create projects and activities. The data elements within these steps can still be reviewed or updated if the copy, template, or third party loader functionality is used to create projects and activities.

    The project general page will be used to add/update/review project information such as the description, status, integration template, project type, start date, end date, description, and long description for the new project.

    Below is the main table populated when establishing Projects:

Table Name	Description	Required

| PROJECT | Projects Table | Yes |

1.1.3   **Establish/Update Project Costing Definition:**

- The project definition page is used to add/update/review information that uniquely identifies the project such as the currency code, rate type, project tree, enforce team options, system source, analysis group options, and whether to use standard activities.

1.1.4   **Establish/Update Project Team (optional):**

- If required, team members can be assigned/updated to the project and the start/end dates can be entered for the team members. Various individuals and their roles on the project can be identified. Team members may receive email notification of project status changes if this functionality is defined for the team member. An individual defined as the project manager can be viewed on the project manager page within the project definition. Teams may be assigned at the project level or the individual activity level.

  The teams may be enforced in the Expenses and/or Time & Labor modules at the installation, business unit, or project level. Enforcing teams limits the expenses and time charged to a project to only those individuals assigned to the project team.

  Below are the tables populated when establishing Project Teams in Project Costing:

Table Name	Description	Required
PROJECT_TEAM	Project Team Member	Yes
PROJECT_MGR	Project Manager	Yes
PROJ_TEAM_SCHED	Project Team Member	Yes
PROJ_ACT_TEAM	Project Activity Team Member	No

1.1.5   **Establish/Update Project Phases:**

- If required, phases may be added/updated for tracking the time (i.e. estimated start/end dates) spent on different milestones and key tasks of a project and for reporting on projects' schedules. Estimated phases may be updated/entered and actual phase scheduled dates that need to be tracked can be reported. Multiple lines for each phase can be set by establishing different statuses for each. These phases are merely an attribute of the project and should only be used as a scheduling or planning device. Cardinal phases do not provide the ability to track costs. Within the projects structure, costs are tracked at the project, activity levels (and optionally at the source type, category and sub-category) not at the Cardinal phases.

1.1.6   **Establish/Update Project Activities:**

- Activities are the individual tasks that make up a project in Cardinal. Activities are very important since project transactions are stored by activity. Activity definitions will most likely be populated by using a project template or copying from another project. Additional activities can be inserted for a project by selecting from the available list of standard activities.

  When defining activities, an activity type, status (active or inactive) and descriptive information are entered. Activity types act as identifiers, enabling similar activities to be grouped together for reporting and analysis purposes. The description and long description fields can be used to describe the Activity. Both of the description fields are date and time stamped.

  Below is the table populated when establishing Project Activities in Project Costing:

Table Name	Description	Required
PROJ_ACTIVITY	Project Activities	Yes

1.1.7 Review/Update Rate Sets:

- A rate set or rate plan can be attached at the project or activity level. This step is not needed if rate sets or rate plans are assigned on the contracts terms (See PA 3.1 – Create Contracts) or on the funds distribution rules (See PA 1.2 – Create & Maintain Funds Distribution Rules). The rate sets/plans assigned to project and/or activities drive pricing for costing and billing. The rate sets or rate plans that are assigned to the project/activity can be viewed on the project rates page.

  If a rate set or rate plan is assigned to a project definition, the system automatically attaches the project's rate selection to the new activities created for the project. The rate set or rate plan can be overridden at the activity level. VDOT will assign rate sets and rate plans during the creation of contracts (see PA 3.1 – Create Contracts)

1.1.8 Define/Update Project Organization:

- The project organization page allows associates specific chartfield values with a project. The chartfields available are defined on the define organization page. Up to five chartfield values can be assigned to a project through project organization. If the project organization is enabled at the installation level, values assigned here can be used in accounting rules or allocations to assign costs from/to the projects chartfields. In addition, this page can be used to share costs and revenue between an organization and the organization owning the project. In order to share costs between organizations, the project must be tied to a contract.

  Chartfield values can still be associated with a project on the organization page even if the organization is not enabled at the installation level. The chartfield values assigned to a project will be for informational purposes. VDOT might elect to associate specific chartfield values on the project organization page to drive the custom speedtype/speedchart automatic creation process. If the functionality associated with project organization can not be used to facilitate the custom speedtype/speedchart creation process, this information will be included on the DOT Page.

  Project organization values can be defined at the project and/or activity level. Project organization values assigned at the activity level will override any values assigned at the project level.

  Below is the table populated when establishing Project Organization:

Table Name	Description	Required
PSA_ORGPRJ_DEFN	Project Owning Organization	Yes
PSA_ORGPRJ_ACT	Project Activity Owning Organization	No

1.1.9 Define/Update DOT Page Information:

- VDOT will utilize a custom DOT page associated with the project definition that will be used to capture VDOT specific data elements, such as, disaster number, reporting category, job section, and FHWA attributes.

1.1.9.1 Run Custom Inbound Interface from iPM

- A custom inbound interface with VDOT's Intergrated Project Management (iPM) system will be created in order to populate project header data that will facilitate annual FHWA reporting such as, area location, federal highway system code, functional class code, scope of work code and project code.

1.1.10   Define/Update Other Project Details:

- The pages highlighted below can be used to capture additional data elements associated with project and/or activity definitions. The data elements captured on the pages listed below are all optional.
    - Location - Assign the physical location of the project. Locations can be assigned at the project or activity level. Locations are pre-configured and they are shared with other modules. This should be noted if VDOT opts to attach pre-configured locations to projects as the pre-configured locations will be available to use in other modules as well.
    - Approval - Specify which project events require approval, who is authorized to approve the events, and in what order the events must be approved. The approval sequences that are set up on this page can be used to set up customized workflow processing. For example, when a change in status occurs for which a project event is defined, it can trigger approval workflow that is defined for that project event and notify the appropriate people that their approval is required.
    - Justification – Allows the entry of a reason for justifying a project-related action.
    - Quality - Rate and record quality of work for specific activities. Informational only.
    - Attachments - Attach, view, and delete related files at the project and/or activity level.
    - User fields - Include additional, user-defined information at the project and/or activity level.

1.1.11   Define/Update Project Status:

- When defining or updating project and/or activity definitions, the project status should be selected and a status effective date assigned. Available options are based on the values that have been pre-configured under status types. When status types are pre-configured, a processing status is mapped to each status type. Available processing status values are Active, Inactive, and Pending. When a project's status type is updated, the system automatically updates the processing status based on this mapping. If project type status paths are used, the only available status types are based on the current status of the project.

    When the project status is changed on a project and/or activity definition, the system automatically sends an email notification to each team member for which there is an email address on the project team detail page with the option selected to email notify for status change.

    A new effective dated row is created for each status change to maintain a history of the project. For example, a project status of Proposed will be assigned when the project is first proposed. When the project passes the review cycle and is accepted, the status will be changed to Open. To assign status changes in advance, new effective dated rows are created and assigned the appropriate future effective date for each status change. If status changes are not selected in advance, it can be manually selected.

    A project and activity definition must have a processing status of Active before the combination can be selected in sub-modules (AP, EX, T&L, GL, etc.) when coding expenditures.

    Below is the table populated when establishing Project Status:

Table Name	Description	Required
PROJECT_STATUS	Project Status	Yes
PROJ_ACT_STATUS	Project Activity Status	Yes

1.1.11.1 Run Custom Outbound Interface to SiteManager

- A custom outbound interface with VDOT's SiteManager system will be run to send valid value combinations to that system for processing purposes. Example: valid project and activity combinations.

1.1.12 Complete Project Initiation Checklist:

- The Project Initiation Checklist provides a series of links that access the appropriate components in Project Costing where each step of a project is implemented. Project managers can change the status of each step so that the checklist becomes an overall picture of the project's progress.

1.2 Create and Maintain Funds Distribution Rules

Once projects and activities are established, the funds distribution rules can be set up for projects/activities that need to have costs distributed/split as the costs are interfaced into Project Costing. Setting up funds distribution rules involves setting up the source criteria and then the target criteria. VDOT will utilize the Funds Distribution functionality to split project costs between state funding sources. All VDOT projects are expected to require a funds distribution rule.

Below are the tables populated when setting up Funds Distribution Rules:

Table Name	Description	Required
PC_FND	Multiple Funding Source Rules	Yes
PC_FND_DIST	Funds Distribution Source Rule	Yes
PC_FND_DIST_RT	Funds Dist Source - Rates	Yes
PC_FND_DIST_LN	Multiple Funding Source Detail	Yes
PC_FND_DIST_SEQ	Funds Dist Source - Sequence	Yes

The Create and Maintain Funds Distribution Rules sub-process is made up of the steps below:

1.2.1 Establish Source Criteria for Funds Distribution:

- Funds Distribution rules may be set up one of two ways. The rule can be established by project id and all of its associated activities or by project and one or more of its associated activities, individually

1.2.2 Define Project Costing & HR Criteria for Incoming Transactions:

- The funds distribution rule source definition tells the system how to determine which costs associated with the project and activity combination from step 1.2.1 should be selected for distribution when the cost are collected from the other Cardinal subsystems in process 4.1 Cost Collection. This criteria is defined by selecting the appropriate analysis type and other identifying information such as source type, category, job code and employee ID that will be present on the transactions rows brought into the Project Costing Transaction table (PROJ_RESOURCE). A wild card can be entered in the PC & HR Criteria fields to indicate any value present is acceptable.

1.2.3 Define General Ledger Criteria for Incoming Transactions:

- The Funds Distribution Rule source definition can be further defined by selecting appropriate General Ledger Chart of Account elements such as fund, program, account, etc. A wild card can be entered in the General Ledger Criteria fields to indicate any value present is acceptable.

1.2.4 Define Burdening Rules for Source Rows (optional):

- The Funds Distribution Rule provides the ability to establish criteria for burdening costs once they are brought into the PROJ_RESOURCE table. This functionality provides the ability to add an additional charge or burden on selected incoming transactions prior to applying target rules. For example, the burdening rule can be set up to add a 12% charge for all incoming transactions from Time and Labor with the analysis type PAY. A row will be added to the PROJ_RESOURCE table equivalent to 12% for each transaction.

1.2.5   Define Criteria for Target Row Sequences:

- The Funds Distribution Rule provides the ability to define the threshold amounts, start and end dates for the sequence, description and status for a sequence that will be used to control the amount of charges that can be processed for the rule and the time period for which the rule is valid.

1.2.6   Define Project Costing Criteria for Target Rows:

- Once the thresholds and time periods have been defined, the participation rates, analysis types, description, activity, source type and other project accounting chartfields that will be applied to the target transaction rows are defined. As with the definition of source row criteria, a wild card can be used here to indicate to the system that the value used on the source row will be inherited on the resulting target transaction row.

1.2.7   Define Budget Check and Reversal Rules (if applicable):

- For each target row defined, the Funds Distribution Rule provides the ability to indicate whether a reversing entry to adjust the source row is needed and if the reversing transaction needs to be budget checked. Transactions will be reversed based on established accounting rules.

  Accounting rules determine how transactions are translated into entries to be sent to the general ledger. Using accounting rules, transactions in projects are converted to accounting lines that are later converted into journal entries by the Journal Generator. Standard accounting entries or rules for project-based transactions are defined based on a combination of the following: Project Costing Business Unit, Project GL Business Unit, Contract, Project and/or activity, Analysis type, Project Chartfields and various project fields (i.e. project type, transaction type). These rules are necessary to process any accounting from project transactions. The rules can be minimized by wildcarding all the fields except the project PCBU and human resource GLBU or can be more specific by using all the fields.

1.2.8   Define General Ledger Criteria for Target Rows:

- The Funds Distribution Rule target definition can be further defined by selecting General Ledger chartfields that should be defaulted onto the target transaction rows, such as, fund, program, account, etc. A wild card can also be used here to indicate to the system that the value used on the source row will be inherited on the resulting target transaction row.

1.2.9   Activate the Funds Distribution Rule:

- Set the status of the distribution rule to active. Also select the effective date of the distribution rule. The system will not distribute a cost row if the row's specified date is earlier than the effective date of the distribution rule.